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EXAMINER

ROSSI, JESSICA

ART UNIT PAPER NUMBER

1733

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/852,788 | <b>Applicant(s)</b><br>BAUMANN ET AL. |  |
|                              | <b>Examiner</b><br>Jessica L. Rossi  | <b>Art Unit</b><br>1733               |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/19/04, Amendment.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 18-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/19/04</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment dated 4/19/04. Claims 16-17 were canceled. Claims 25-26 were added. Claims 1-15 and 18-26 are pending.
2. The rejection of claims 1, 5, 13-14, 18, 21, and 23 under 35 U.S.C. 103(a) as being unpatentable over Philofsky '737 (of record) in view of the collective teachings of Anderson '130 (of record) and the prior art referred to by Krackeler '607 (of record), and also in view of the collective teachings of Beninger '011 (of record), Barnett '116 (of record), and Cassell '970 (of record), as set forth in paragraph 5 of the previous office action dated 10/17/03, has been withdrawn due to the examiner finding better prior art upon further searching.
3. Support for the new limitations found in claims 20 and 26 can be found in sections [0036] and [0040], respectively.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:  
  
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Regarding claim 25, the present specification does not have support for a thickness of the rectangular insulating shrink-on sleeve being thicker at a first pair of opposing sides than at a second pair of opposing sides.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 5, 13-14, 18, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky (US 3497737; of record) in view of the collective teachings of Hennessey (US 3157449), Faust (US 5661842), and Watine (US 4384404), and also in view of Anderson (US 5793130; of record).

With respect to claim 1, Philofsky is directed to producing an insulated stator winding 16 for a rotating electrical machine (column 1, line 27; column 2, lines 9-10). The reference teaches applying an electrically insulating sheath 19 having a rectangular cross-section (Figure 2; column 3, lines 7-8) to a periphery of a rectangular conductor bar, which is made up of a plurality of conductors 17 (Figure 2; column 2, lines 67-68). The reference is silent as to the material of the sheath and how the sheath is applied to the conductor bar – specifically, the sheath being shrunk onto the conductor bar.

It is known in the conductor insulating art to insulate electrical conductors by applying an electrically insulating heat-shrinkable sleeve having a rectangular cross-section to the conductors, as taught by the collective teachings of Hennessey (note **rectangular sleeve 66**; Figures 1-2; column 1, lines 46-50; column 2, lines 17-30), Faust (abstract; column 2, lines 21-

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25; column 4, lines 55-62; **column 5, lines 8-13**), and Watine (abstract; column 2, lines 63-67; **column 3, lines 23-28**).

One reading the Philofsky reference as a whole would have appreciated that the material of the insulating sheath 19 and a method for its application to the conductor bar is not critical to the invention. Therefore it would have been obvious to the skilled artisan at the time the invention was made to apply the insulation sheath 19 of Philofsky as a heat-shrinkable sleeve having a rectangular cross-section because such is known in the conductor insulating art, as taught by the collective teachings of Hennessey, Faust, and Watine, wherein heat-shrink application is fast and efficient and allows for a tight fit between the insulation and conductor bar and wherein using a heat-shrinkable sleeve having the same cross-section as the article to which it is being applied results in the tightest fit between the sleeve and article.

The examiner would have been further motivated to use an insulating shrink-sleeve for the insulating sheath 19 of Philofsky by the fact that it is known in the stator winding art to apply a heat-shrinkable sleeve thereto, as taught by Anderson (column 3, lines 33-36 and 55-58), thereby allowing the examiner to at least appreciate that a heat-shrinkable sleeve, be it used for insulation purposes or not, is capable of being applied to a stator winding, which is made up of a plurality of conductors.

Regarding claim 5, the collective teachings of Hennessey, Faust, and Watine teach the sleeve being heat shrinkable.

Regarding claim 13, Philofsky teaches the conductor bar comprising individual conductors 17 (Figure 2).

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Regarding claim 14, Philofsky is silent as to temporarily connecting the individual conductors. It would have been obvious to one of ordinary skill in the art at the time the invention was made to temporarily connect the conductors because this would prevent them from moving around during shrinking of the sleeve.

Regarding claim 18, Philofsky is silent as to the dynamoelectric machine being a direct or alternating current machine. However, the skilled artisan would have readily appreciated that dynamoelectric machines can be either direct or alternating current machines.

Regarding claim 21, Philofsky teaches the conductors having a rectangular cross-section (Figure 2).

Regarding claim 23, the collective teachings of Hennessey, Faust, and Watine teach the sleeve having a rectangular internal cross-section (see above with respect to claim 1).

8. Claims 2-3, 6, 12, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson as applied to claim 1 above, and further in view of the Admitted Prior Art in the specification of the present application.

Regarding claims 2 and 24, Philofsky is silent as to mechanically dilating the shrink-on sleeve in its cold state and applying the sleeve around an outer periphery of a support sleeve before the support sleeve is pulled over the conductor bar. It appears that Applicants teach it is known in the insulating shrinkable sleeve art to mechanically dilate a shrink-on sleeve in its cold state and apply the shrink on sleeve around an outer periphery of a support sleeve before the support sleeve is pulled over the article to which both sleeves will be shrunk onto, as an alternative to using an insulating heat-shrinkable sleeve (p. 3-4, [0009]).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the sleeve to the conductor bar of Philofsky in the manner claimed by Applicants because such is known in the shrinkable sleeve art as an alternative to a heat-shrinkable sleeve, as taught by the Admitted Prior Art in the specification of the present application, and one reading the Philofsky reference as a whole would have appreciated that no criticality is placed on how the sheath is applied to the conductor bar where only the expected results would have been achieved.

Regarding claim 3, the Admitted Prior Art in the specification of the present application teaches removing the support sleeve from between the insulating shrink-on sleeve and the article after the support sleeve surrounded by the shrink-on sleeve has been applied to the article (p. 3, [0009]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the support sleeve as suggested by Applicants because such is known in the art, as taught by the Admitted Prior Art, where only the expected results of allowing the sleeve to shrink onto the conductor bar would have been achieved.

Regarding claim 6, Philofsky is silent as to dilating the sleeve with compressed air and pulling the sleeve in a cold state over the conductor bar. Selection of a particular method for dilating the sleeve would have been within purview of the skilled artisan at the time the invention was made absent any unexpected results. It would have been obvious to one of ordinary skill in the art at the time the invention was made to pull the dilated sleeve in a cold state over the conductor bar because it appears that Applicants teach that such a technique is known in the shrinkable sleeve art (p. 3 [0009]) as discussed above in reference to present claim 2.

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Regarding claim 12, Philofsky is silent as to the conductor bar and insulating sheath being bent with a bending device into a shape suitable for a stator. It would have been obvious to one of ordinary skill in the art at the time the invention was made to bend the conductor bar having the sleeve thereon into a suitable stator configuration because it appears Applicants teach such being known in the stator winding art (p. 4, [0010]), wherein such bending is necessary to produce the desired shaped stator.

Regarding claim 15, Philofsky is silent as to the conductors not being Roebel-transposed in the area of an involute. It appears Applicants teach it is known in the art to use conductors in a Roebel-transposed arrangement of a non-Roebel-transposed arrangement (p. 2, [0005]). Selection of either arrangement would have been within purview of the skilled artisan at the time the invention was made absent any unexpected results.

9. Claims 4, 20, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson, and also the Admitted Prior Art as applied to claim 2 above, and further in view of the collective teachings of Evans (US 4135553; of record) and Forman et al. (US 5624618; of record).

Regarding claim 4, the Admitted Prior Art is silent as to removing the support by melting the support. It is known in the heat-shrinkable sleeve art to remove a polymer support from a shrinkable sleeve by dissolving the support in a solvent, as taught by Evans (column 3, lines 59-61). It is also known to remove a polymer support from the material it is supporting by melting the support as an alternative to dissolving it in a solvent, as taught by Forman et al. (column 3, lines 17-18). Therefore, it would have been obvious to the skilled artisan at the time the invention was made to remove the support from the shrinkable sleeve of Philofsky by melting



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the support because such is known alternative for removing a support, as taught by the collective teachings of Evans and Forman, and this allows for easy removal of the same.

Regarding claim 20, Evans and Forman teach the support being polymeric. Selection of a polymeric support having particular characteristics would have been within purview of the skilled artisan at the time the invention was made depending on the materials of the sleeve and article onto which the sleeve is shrunk.

Regarding claim 26, the skilled artisan would have appreciated that the elastomeric heat-shrink sleeves of Hennessey (column 2, lines 19-20), Faust (column 5, lines 13-25), and Watine (column 3, lines 1-5), like the present invention (see claim 11), would also adhere on the surface of the conductor bar and therefore fill any voids (i.e. spaces between conductors).

10. Claims 7-9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson as applied to claim 1 above, and further in view of Mohebban et al. (US 4589939; of record).

Regarding claims 7 and 9, Philofsky is silent as to the sleeve being made of a plurality of radially superimposed layers each having different properties. It would have been obvious to one of ordinary skill in the art to use a heat-shrinkable sleeve having a plurality of radially superimposed layers with different properties because such is known in the conductor insulating art, as taught by Mohebban (column 2, lines 61-65), where this allows for manipulation of the properties of the sleeve.

Regarding claim 8, Philofsky is silent as to how the sleeve is made. It would have been obvious to one of ordinary skill in the art at the time the invention was made to co-extrude the

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sleeve because such is known in the art, as taught by Mohebban (column 2, lines 55-56), and this allows for continuous production of the sleeve.

Regarding claim 22, Mohebban teaches one of the layers being the main insulation (column 6, lines 62-65).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson as applied to claim 1 above, and further in view of Dienes (US 3946480; of record).

Regarding claim 10, Philofsky is silent as to providing adhesive between the sleeve and conductor bar. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply adhesive to the inside of the sleeve or the outside of the conductor bar because such is known in the conductor insulation art, as taught by Dienes (column 5, line 64 – column 6, line 1), where this would ensure a good bond between the same. Selection of a particular adhesive would have been within purview of the skilled artisan depending on the desired characteristics.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson as applied to claim 1 above, and further in view of Vallauri et al. (US 5985062; of record).

Regarding claim 11, Philofsky is silent as to the sleeve being an extruded elastomer. Selection of a particular material for the sleeve would have been within purview of the skilled artisan at the time the invention was made depending on the desired characteristics thereof. However, it is known in the art to make insulation sleeves from extruded elastomeric material wherein these sleeves are applied as insulation to conductors, as taught by Vallauri (column 3,

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lines 20-21 and 47-51). Therefore, it would have been obvious to the skilled artisan to use an extruded elastomer for the sleeve of Philofsky because such is known in the conductor insulating art, as taught by Vallauri, wherein such a material works well in heat-shrink applications.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Philofsky, the collective teachings of Hennessey, Faust, and Watine, and also Anderson, and also the Admitted Prior Art as applied to claim 3 above, and further in view of Krackeler (US 4585607; of record).

Regarding claim 19, the Admitted Prior Art (p. 4, [0009]) and Krackeler (Figure 5; column 2, lines 20-22) teach the support being removed along helically arranged perforations.

#### ***Response to Arguments***

14. Applicant's arguments filed 4/19/04 have been fully considered but they are not persuasive.

15. On page 9 of the arguments, Applicant argues that the rejection bases on Philofsky, Anderson, Krackeler, Beninger, Barnett, and Cassell should be withdrawn because the criteria for a prima facie case of obviousness has not been met.

The examiner points out that this rejection was withdrawn in the present office action.

16. On pages 9-11 of the arguments, Applicant argues that even though the Philofsky reference is silent as to any specifics regarding the insulation sheath 19, the skilled artisan would have understood that this sheath "consists of several layers of glass-mica tape bonded by a brittle and elastic thermoset material wherein the rectangular shape is produced by having the tape insulation on the conductor bar in a mold during impregnation and curing." Applicant goes on to cite various NPL documents that discuss such a glass-mica tape used for insulating stator windings.

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While the examiner does not dispute that glass-mica tape insulation is known in the stator winding art, Applicant's assertion that Philofsky is using mica tape insulation is mere speculation.

**First, Philofsky is completely silent as to the material of the insulation sheath 19 and how it is applied to the conductor bar and, second, one skilled in the art reading the reference as a whole would have appreciated that such is not critical to the invention.**

Furthermore, based on the collective teachings of Hennessey, Faust and Watine, which set forth using electrically insulating shrink-on sleeves having rectangular cross-sections for insulating conductors (see paragraph 7 above), and the teaching of Anderson, which sets forth applying a heat-shrink sleeve to a stator winding (see paragraph 7 above), the skilled artisan would have been motivated to use a shrinkable sleeve having a rectangular cross-section for the insulation 19 of Philofsky.

17. On pages 13-15 of the arguments, Applicant argues Anderson and Krackeler both disclose insulation based on circular cross-sectional support and shrink elements. Applicant also argues that Anderson teaches the sleeve being used for protecting the stator winding from debris and not being used for insulation.

The examiner points out that Anderson was only used to show it is known to apply a heat-shrinkable sleeve to a stator winding. Krackeler was only used to show it is known in the art to remove a support sleeve by helically opening the same along arranged perforations.

18. On page 15, Applicant argues that Beninger and Barnett teach shrink sleeves for packaging which is a completely different application than that of the present invention.

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The examiner points out that these references are no longer being relied upon in the rejections set forth in the present office action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **571-272-1223**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine R. Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Jessica L. Rossi  
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